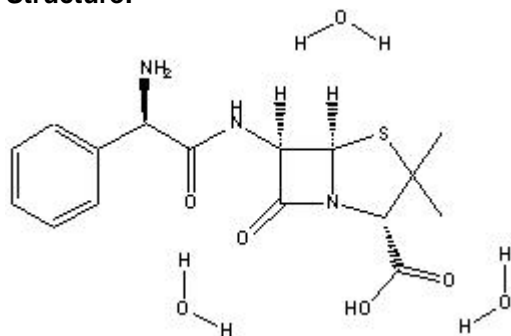


TECHNICAL INFORMATION

Catalog Number: 190147
Ampicillin, Trihydrate

Structure:



Molecular Formula: C₁₆H₁₉N₃O₄S·3H₂O

Molecular Weight: 403

CAS # 7177-48-2

Synonyms: D[-]-a-Aminobenzylpenicillin; 6-[D(-)-a-Aminophenylacetamido]penicillanic acid

Physical Description: White to off-white powder

Solubility: Soluble in 1 M Ammonium Hydroxide (50 mg/ml), dilute acids (50 mg/ml 1 M HCl) or bases¹²; slightly soluble in water (10 mg/ml); practically insoluble in alcohol, chloroform, ether and fixed oils.

Ampicillin rapidly loses activity when stored above a pH of 7.0.^{4,5,11} Optimal conditions for storage are at +4°C, pH 3.8 to 5. At these conditions the solutions will retain more than 90% activity for approximately one week. Buffer compositions may also effect stability: Optimally Tris buffers should have a pH of approximately 5, citrate buffers at 7, acetate buffers at 6.^{4,5}

Autoclaving solutions of ampicillin will destroy activity. Solutions can be sterilized by filtration (0.22 um filter) and stored frozen (-20°C or below). Frozen solutions can be stored for up to 3 months.

pKa Values (at 25°C):¹²

pKa = 2.5 (-COOH)

pKa = 7.3 (-NH₂)

Description: Ampicillin is a semi-synthetic derivative of penicillin, active as a broad-spectrum antibiotic. It is inactivated by beta-lactamases and for this reason a beta-lactamase inhibitor should be considered when using ampicillin. Against gram-positive bacteria, ampicillin has a similar mode of action as benzylpenicillin; against gram-negative bacteria, it has a similar mode of action as chloramphenicol and tetracyclines. In *E. coli* it inhibits cell wall synthesis.¹⁸

Also described for the use of enhancing luminol chemiluminescence.¹⁵

Suggested Effective Concentrations: 100 mg/liter for both gram positive and gram negative bacteria. It is typically stable in media at 37°C for approximately 3 days.²⁶

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